In re application of: **Richard Morgal** Confirmation No.: **1563**

Serial No.: **10/821,593** Group Art Unit: **1795**

Filed: **April 9, 2004** Examiner: **Hall, Asha J.**

For: **METHOD AND APPARATUS FOR SOLAR ENERGY COLLECTION**

In accordance with 37 C.F.R. 1.8, I hereby certify that this correspondence and all its attachments are being deposited on **Monday, April 28, 2008** with the U.S. Postal Service with sufficient postage as First Class mail in an envelope addressed to Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

William C. Boling 4-28-2008
William C. Boling Date

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Sir:

This paper requests review of the outstanding ground of rejection of the subject application. It is responsive to the Office Action of November 26, 2007 finally rejecting the subject application, as well as to an advisory action issued April 1, 2008. A transmittal letter, a petition for a second month of extension of time to respond, a Notice of Appeal, and a check for the corresponding required fees accompany this paper.

All pending claims stand rejected as obvious over Cluff in view of Laing. Cluff teaches two-axis tracking, while Laing teaches single-axis tracking, but both teach pontoon solar/electric conversion. Similarly as Claim 8, Claim 1 requires (emphasis added): "wherein the liquid bath is a coolant that provides primary cooling of the conversion device through thermal contact with an exterior of the support structure." Both Cluff and Laing teach cooling by means of coolant forced through tubes routed close to the conversion devices. Neither Cluff nor Laing teach cooling as required by independent Claims 1 or 8, and thus the combination of Cluff and Laing clearly fails to support *prima facie* obviousness of any pending claim.

DETAILS

Independent Claims 1 and 8 are directed to apparatus for concentrating sunlight onto a photovoltaic converter to convert sunlight to electricity (concentration is the effect of guiding light from a receiving area toward a smaller conversion device, as required by (c)). Both Cluff and Laing recognize the necessity of cooling "concentrating photovoltaics," those that must withstand the greatly concentrated rays of the sun, to

prevent failure, and each accordingly teaches a cooling technique. In fact, the cooling technique Laing teaches is substantially identical to the cooling technique taught by Cluff. Both teach disposing tubes near the conversion devices, and forcing cooling liquid through the tubes to cool the devices.

In such "conventional cooling" taught by Cluff and Laing, heat energy must flow from the conversion devices (photovoltaic cells), through a mounting, into the wall of the cooling tubes and thence into the cooling liquid forced through the tubes. It would be accurate to characterize such cooling as "through the conversion device mounting," or "through the coolant tube walls." It would not be accurate to characterize such cooling as "through thermal contact with an exterior of the support structure."

"The support structure" is amply defined in Claims 1 and 8 such that it cannot be confused with cooling tubes. One example of "the support structure" is a pontoon as described in the subject application; comparable support structures in Cluff and Laing may also be referred to as "pontoons" for convenience.

Claims 1 and 8 require "primary cooling of the conversion device through thermal contact with an exterior of the support structure." There is no reasonable way to construe this language other than as requiring that said thermal contact must accomplish the primary cooling of the device.

Contact between a cooling liquid and an exterior of a support structure does not provide primary cooling in any embodiment of Cluff or Laing, and neither reference includes teaching, disclosure, or reasonable suggestion that such cooling may, could, or should be employed. Every possible reference to cooling in the Cluff reference is analyzed in a paper entitled "Interview Summary and Supplemental Cluff Analysis," submitted April 9, 2008 in response to a request from the Examiner. That exhaustive analysis leaves no reasonable doubt that Cluff entirely fails to teach, disclose or suggest such cooling.

Initially, the Laing reference was incorrectly analyzed by the undersigned. However, such initially flawed analysis cannot change the fact that Laing completely fails to teach, disclose or fairly suggest cooling as required by Claim 1 (or Claim 8). Laing teaches only conventional cooling, such as is taught by Cluff. The Laing descriptions of cooling are set forth succinctly in the next paragraph, as this analysis has not previously been made of record.

Figure 3 illustrates cooling through pipe **34***u*, which acts as a unit (is closely attached) to the photovoltaic cell (col. 5 lines 1-9). No alternative to such cooling through a pipe is suggested; and the pipe is clearly not "an exterior of the support structure" as required by Claims 1 and 8. In regard to Fig. 5, Laing describes (col. 6 lines 19-22): "the cooling pipe **54** of the photovoltaic cell **55.**" In regard to Fig. 7, Laing

describes (col. 7 lines 16-19, underlining added): "Tubes **66***d* and **66***e* of a cooling water system under pressure ... run within the floating bodies **66***a* and **66***b*." Cooling water pipes **89***e* and **89***d* (col. 7 lines 65-68) are described in regard to Fig. 8*b*. Fig. 9 does not show cooling lines adjacent the photovoltaic cells, but describes cooling water feed lines (col. 8 lines 34-36): "The feed lines **96***d* and the insulated return lines **96***e* for the cooling water circuit run within the floating bodies **95**." No further figures illustrate actual cooling of the devices; however, the text associated with Fig. 11 (col. 8 line 58 - col. 9 line 11) describes using a submersible pumps **114** to supply the cooling water. Note that the water is driven via a distribution system **116** to supply the cooling pipes of the photovoltaic cells.

Thus, all of the cooling described by Laing is via cooling pipes proximate to photovoltaic cells. No suggestion is made of cooling through "an exterior of the support structure," as required by Claims 1 and 8.

The Examiner contends that Laing discloses the required cooling, stating that Laing:

> ... further discloses that waste heat can be absorbed by the water of the liquid layer/liquid bath and transferred to a heat exchanger and then cooling water/coolant can be fed via an open trough running along the periphery of the platform through a distributing system into the energy converting device (col. 3; lines: 10-20). (Final Rejection, p. 11, top)

To all appearances, this statement in support of the rejection fails to assert that Laing teaches cooling "through thermal contact with an exterior of the support structure," as required by Claim 1 (and similarly for Claim 8). As such, the Examiner fails to even assert a ground of rejection that could support *prima facie* obviousness of Claim 1 or Claim 8. In any event, the cited references fail to disclose all required elements and therefore fail to support *prima facie* obviousness of any pending claim.

Construction Issue?

Perhaps, however, the Examiner has adopted an unexpected construction of "an exterior of the support structure." The following remarks address this possibility, which is not previously of record.

"An exterior of the support structure" is a part of the support structure, as is entirely clear in context, and as is required by proper semantic interpretation. "An exterior of the support structure" is necessarily a part of the structure: in particular, a surface that interfaces between "the support structure" and "that which is external to the support structure." Any other construction would be incorrect, and as such is unexpected. Nonetheless, if the Examiner is relying on some other construction of these words, then there is no need to proceed with the present appeal. Instead, the Applicant would be pleased to amend Claims 1 and 8 to recite

(for example) "through thermal contact with an exterior surface of the support structure." The Examiner is respectfully requested to clarify any construction contrary to that obviously assumed by the Applicant.

Previous Examination Agrees with Applicant

The subject application is a continuation-in-part of the parent international application PCT/US02/32550 (published as WO 03/032404), for which USPTO Examiner Alan Diamond performed a Chapter II International Preliminary Examination. Examiner Diamond originally found all "pontoon" claims (essentially a superset of presently pending Claims 1-14) to be neither novel nor inventive over Cluff. As one of the four references he cited with respect to those pontoon claims, Examiner Diamond also cited the Laing reference; however, he indicated that Laing was an "A" reference, for general background only, and did not apply it as a basis for drawing a conclusion of lack of inventiveness.

In the Response to Written Opinion, the Applicant argued the distinctions over Cluff of dependent claims substantially identical to Claims 1 and 8 as presently pending. Examiner Diamond found the arguments compelling and reversed his original position, indicating in the International Preliminary Examination Report that those claims were novel and nonobvious over the cited prior art. The cited prior art included both Cluff and Laing, though Laing was never applied.

Examiner Diamond's reversal of an initial rejection buttresses the arguments set forth above. Those arguments require a conclusion that independent Claims 1 and 8 are nonobvious over Cluff and Laing. It should not be necessary for the Applicant to resort to the Board of Patent Appeals and Interferences to obtain allowance of the pending claims, which are properly allowable.

Conclusion

The Applicant believes that each claim is nonobvious and properly allowable over the cited prior art, and is diligently seeking to resolve any misunderstanding that may underlie the outstanding ground of rejection. On reasonable construction, neither Cluff nor Laing provides teaching, disclosure, or fair suggestion of cooling as required by Claim 1 or Claim 8. If the Examiner is relying on a construction that differs from the scope of the claims as expressed in papers submitted by the Applicant, the Applicant is willing to amend to avoid any such unexpected construction. Substantively, it is respectfully submitted that no combination of Cluff and Laing can render obvious the invention claimed in Claim 1 or Claim 8.

The remarks set forth above support a conclusion that the outstanding ground of rejection of the subject claims is improper. As such, the Examiner is respectfully requested to withdraw the pending grounds

of rejection. It would be a misuse of public and private resources to require the subject application to proceed with an appeal to the Board of Patent Appeals and Interferences in order to obtain the patent protection to which it is properly entitled.

The Commissioner is authorized to construe this paper as including a petition to extend the period for response by the number of months necessary to make this paper timely filed.

Respectfully submitted,

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